DUQUETTE PINES INC (PWS 4080016)
SOURCE WATER ASSESSMENT FINAL REPORT

November 6, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Duquette Pines Inc, Idaho City, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Duquette Pines Inc public water system (PWS #4080016) consists of five wells that are mainfolded together. The system serves approximately 90 people through 53 connections.

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic chemical (IOC, i.e. nitrates, arsenic) contaminants, volatile organic chemical (VOC, i.e. petroleum products) contaminants, synthetic organic chemical (SOC, i.e. pesticides) contaminants, and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, Wells #2 and #3 automatically rate high for microbial contaminants due to total coliform bacteria detections. Wells #1 and #5 automatically rate high for all types of contaminants because access is not restricted to vehicular traffic within 50 feet of the wellheads. Except for these cases, all the wells would rate moderate for all categories of contaminants. System construction scores rated moderate and hydrologic sensitivity scores rated high for all the wells. Potential contaminant inventory/land use scores were moderate for IOCs, VOCs, SOCs, and low for microbials.

No SOCs or VOCs have ever been detected in the tested water. Traces of the IOCs barium, fluoride, and nitrate have been detected in the wells. In December 1998, arsenic was measured at 30 parts per billion (ppb) at the manifold. In October 2001, the EPA lowered the maximum contaminant level (MCL) for arsenic from 50 ppb to 10 ppb, giving systems until 2006 to come into compliance. The September 2000 arsenic measurement had a value of 4 ppb. In October 1996, July 1997, and July 2002, repeat detections of total coliform occurred in the distribution system. In July 1997, repeat detections of total coliform also occurred in Wells #2 and #3.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Duquette Pines Inc, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 50-foot radius circle around the wellhead clear of potential contaminants. Restricting access to vehicles and other unauthorized access within this 50-foot radius circle would reduce the susceptibility scores of Well #1 and #5 from high to moderate. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated assessment areas are outside the direct jurisdiction of Duquette Pines Inc, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Because the arsenic in the well has exceeded the level of the revised MCL, the Duquette Pines Inc water users may need to consider implementing engineering controls to monitor and maintain or reduce the level of this contaminant in the water system. The EPA plans to provide up to $20 million over the next two years for research and development of more cost-effective technologies to help small systems meet the recently revised MCL. EPA (2002) recently released an issue paper entitled *Proven Alternatives for Aboveground Treatment of Arsenic in Groundwater*. This issue paper discusses various treatment options for arsenic and given examples of where each of these technologies have been applied. A copy of this paper can be found at the following EPA website (http://www.epa.gov/tio/tsp/download/arsenic_issue_paper.pdf).

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near residential land uses areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. The primary source of potential contaminants comes from the mining activities within the delineations. Therefore the Forest Service or other federal agencies should be involved in protection activities.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR DUQUETTE PINES INC, IDAHO CITY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Duquette Pines Inc public water system (PWS #4080016) consists of five wells that are mainfolded together. The system serves approximately 90 people through 53 connections. Duquette Pines Inc is located to the northeast of Idaho City (Figure 1).

No SOCs or VOCs have ever been detected in the tested water. Traces of the IOCs barium, fluoride, and nitrate have been detected in the wells. In December 1998, arsenic was measured at 30 parts per billion (ppb) at the manifold. In October 2001, the EPA lowered the maximum contaminant level (MCL) for arsenic from 50 ppb to 10 ppb, giving systems until 2006 to come into compliance. The September 2000 arsenic measurement had a value of 4 ppb. In October 1996, July 1997, and July 2002, repeat detections of total coliform occurred in the distribution system. In July 1997, repeat detections of total coliform also occurred in Wells #2 and #3.

Defining the Zones of Contribution – Delineation

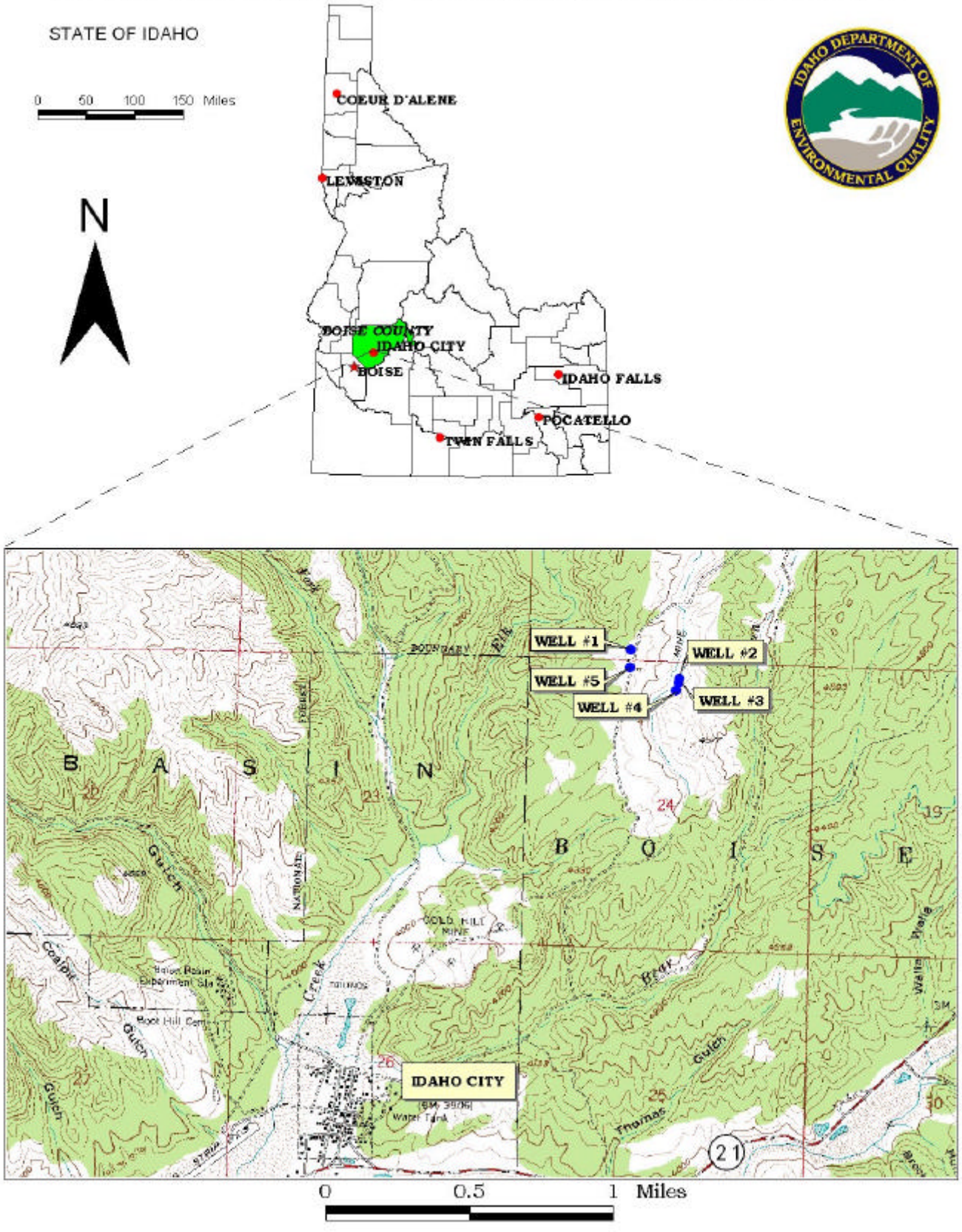
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ performed the delineation using a topographic watershed model approved by the EPA in determining the 3-year (Zone 1B) TOT for water associated with the Mores Creek aquifer in the vicinity of the Duquette Pines Inc. The computer model used site specific data, assimilated by DEQ from a variety of sources including Duquette Pines Inc well logs, other local area well logs, and hydrogeologic reports (detailed below).

General Geology for the Mores Creek Aquifer System

The Mores Creek province lies in the southern part of the Northern Rocky Mountain Physiographic Province, just north of the Snake River Plain subdivision of the Columbia Plateau Physiographic Province. Soils formed in alluvial and colluvial sediments and on bedrock surfaces. The Mores Creek Basalt apparently erupted from vents and inundated the ancestral Mores Creek Valley (Otheberg, 1994). Subsequent erosion by Mores Creek has exposed the basalt in the canyon. Surficial soils are underlain by biotite granodiorite rock (“granite”) of the Idaho Batholith, which is the predominant rock type in the region (Kiilsgard et al., 1997).

Northeast-trending faults occur throughout the area. These faults are not known to be active and form part of the trans-Challis Fault System that extends over 60 miles from the Boise Front to east central Idaho. Springs, topography, stratigraphic relations, and lithologic changes often are used to infer fault locations. These are high-angle normal faults that often form grabens (Idaho Geological Survey, 1991). The fault zones are described as shear zones (Scanlan, 1986), which can be filled with clayey fault gouge. In shear zones where fault gouge is not present the crushed rock acts as a zone of high permeability.

FIGURE 1. Geographic Location of Duquette Pines Inc.



Climate

Precipitation at Idaho City has averaged about 23 inches per year from 1917 to 1995, with most precipitation occurring from November through March. The temperature during these months ranges from 23.5 °F to 34.2 °F (www.worldclimate.com). Discharge is measured in Mores Creek at Robie Creek near the Arrowrock Dam (USGS Station 13200000). The long term median flow values are based on 51 years of data. The long term median peak flow in April and May is 846 cubic feet per second (cfs), with the long term median low flow of about 40 cfs from July through October (id.waterdata.usgs.gov).

Final Delineation Capture Zone

A topographic watershed delineation was produced for these wells, with the constraints of the Elk Creek Fault to the west, the Mores Creek Fault to the east, and the topographic high bounding the end of the delineation. These faults are likely contributing to the recharge of the granite in the area. The delineated source water assessment area for the Duquette Pines Inc wells extends to the northeast about 9 miles and is about 3 miles in width (Figure 2). The actual data used in determining the source water assessment delineation area is available from DEQ upon request.

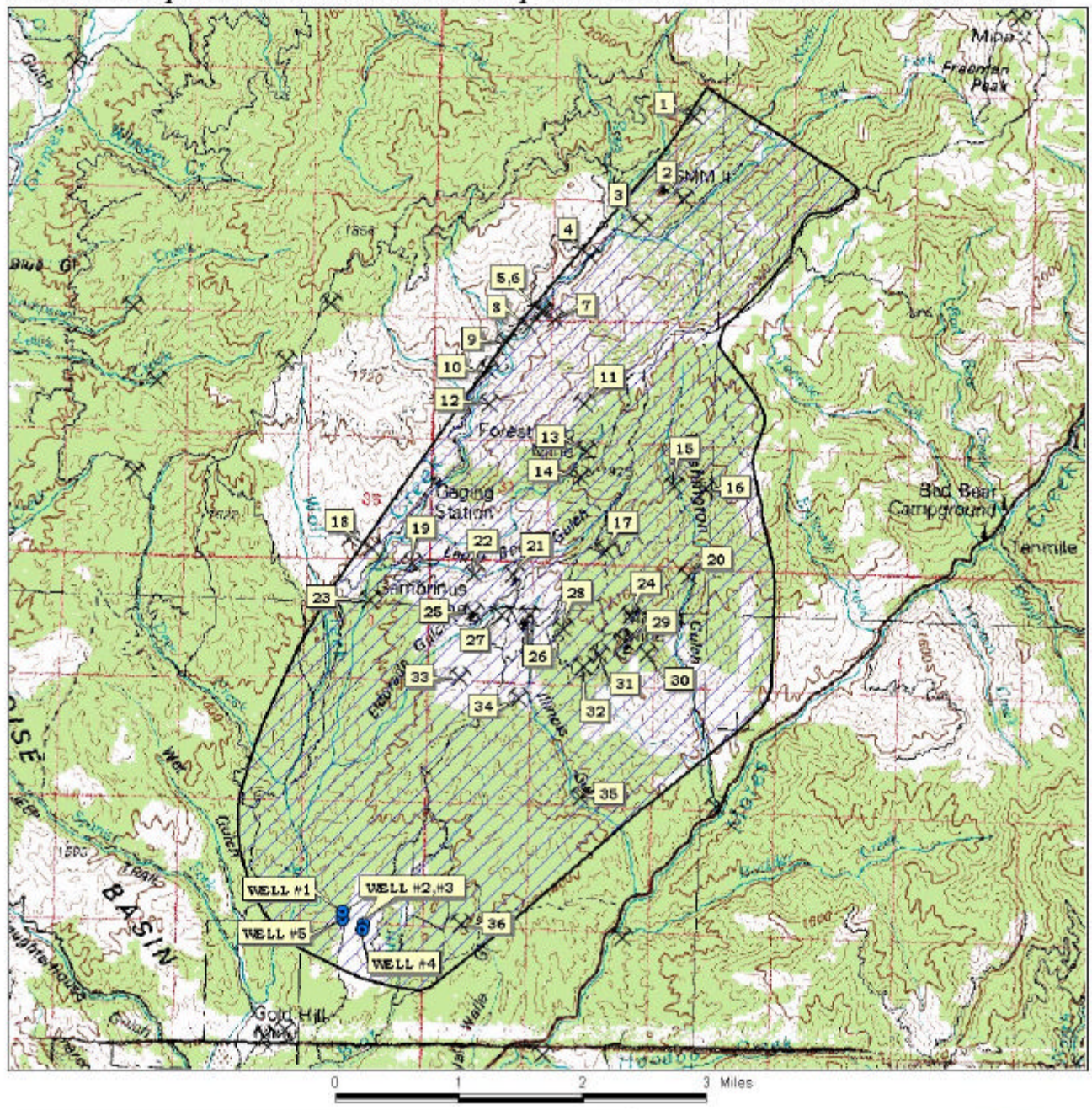
Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the area surrounding the Duquette Pines Inc wells is predominately forested lands with mining prospects.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

FIGURE 2. Duquette Pines Inc. Delineation Map and Potential Contaminant Source Locations



LEGEND

Time of Travel Zones
- 1B (5 yr TOT)
- 2 (6 yr TOT)
- 3 (10 yr TOT)
- Wellhead
- Enhanced Inventory
- CERCLIS Site
- RICRIS Site
- Dairy
- LUST Site
- Closed UST Site
- Open UST Site
- Business Mailing List
- NPDES Site
- Mine
- AST
- Toxic Release Inventory
- SARA Title III Site (EPCRA)
- Recharge Point
- Injection Well
- Group1 Site
- Cyanide Site
- Landfill
- Wastewater Land App Site

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS# 4080016
WELL #1,#2,#3,#4,#5

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in May and June 2002. The first phase involved identifying and documenting potential contaminant sources within the Duquette Pines Inc source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas.

The delineated source water area for the wells (Figure 2, Table 1) have their potential contaminants outlined below. Sources include numerous mines and surface water sources.

Table 1. Duquette Pines Inc, Potential Contaminant Inventory

SITE	Source Description[1]	TOT[2] Zone (years)	Source of Information	Potential Contaminants[3]
1	Gold mine	0-3	Database Search	IOC
2	Gold mine	0-3	Database Search	IOC, VOC, SOC
3	Thorium mine	0-3	Database Search	IOC
4, 5, 7, 8, 9, 12, 18, 19, 20, 23, 28, 32	Unnamed Prospects	0-3	Database Search	None
6	Gold mine	0-3	Database Search	None
10	Gold mine	0-3	Database Search	IOC, VOC, SOC
11	Mine	0-3	Database Search	None
13	Gold mine	0-3	Database Search	IOC
14	Gold mine	0-3	Database Search	IOC
15	Gold mine	0-3	Database Search	IOC
16	Gold mine	0-3	Database Search	IOC
17	Mine	0-3	Database Search	None
21	Gold mine	0-3	Database Search	IOC, VOC, SOC
22	Lead mine	0-3	Database Search	IOC
24	Gold mine	0-3	Database Search	IOC
25	Gold mine	0-3	Database Search	IOC, VOC, SOC
26	Gold mine	0-3	Database Search	IOC
27	Gold mine	0-3	Database Search	IOC
29	Gold mine	0-3	Database Search	IOC
30	Gold mine	0-3	Database Search	IOC
31	Gold mine	0-3	Database Search	IOC
33	Gold mine	0-3	Database Search	IOC
34	Gold mine	0-3	Database Search	IOC
35	Gold mine	0-3	Database Search	IOC
36	Thorium mine	0-3	Database Search	IOC
	Elk Creek	0-3	GIS Map	IOC, VOC, SOC, M
	Gulches	0-3	GIS Map	IOC, VOC, SOC, M

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, SOC = synthetic organic chemical, VOC = volatile organic chemical, M = microbial

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

All five wells rated high for hydrologic sensitivity (Table 3). Area soils are moderate to well-drained. The available well logs show that the vadose zones are only 10 to 30 feet deep and consist of clay and fractured granite. In addition, there are not sufficient low permeability layers between the surface and the producing zones.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

All five wells rated moderate for well construction (Table 3). A sanitary survey was conducted in 1997 and found that all five wells had adequate wellheads and surface seals and are protected from surface flooding. In addition the producing zone in each well was greater than 100 feet below the water table. A summary of the well construction information is contained in Table 2.

Table 2. Summary of Well Construction Information

Well #	Drill Year	Depth (ft)	Casing: diameter/ thickness (in)	Casing: depth (ft)/ formation	Water Table Depth (ft)	Screened Interval (ft)	Surface seal: depth (ft)/ formation	Sanitary Survey Elements*
#1	1970	344	6/0.250	100/ Decomposed granite	30	100-344 open	100/Decomposed granite	Yes/Yes
#2	1976	295	6/0.250	96/Hard white granite	10	96-295 open	20/Brown dry clay	Yes/Yes
#3	1976	445	6/0.250	94/White hard granite	15	94-445 open	20/Brown dry clay	Yes/Yes
#4	1976	420	6/0.250	60/Hard white granite	10	60-420 open	20/Gummy brown clay	Yes/Yes
#5	1994	490	6/0.250, 4/NI	489/Hard white granite	63	329-369, 389-429, 449-489	18/Orange decomposed granite	Yes/Yes

*** Wellhead and surface seal adequate/Protected from surface flooding**

Current PWS well construction standards are more stringent than when the wells were constructed. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the regulations deal with screening requirements, aquifer pump tests, use of a downturned casing vent, and thickness of casing. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Six-inch casings should be 0.280 inches thick. Although the wells may have met regulations at the time of their construction, the wells were assessed an additional system construction point because they did not meet the current, stricter standards.

Potential Contaminant Source and Land Use

The wells rated moderate for IOCs and low for VOCs, SOCs, and microbial contaminants. The large amount of undeveloped forest land surrounding the wells kept the scores reduced, but the presence of numerous mines and surface water drainages contributed to the scores.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. In this case, Wells #2 and #3 automatically rate high for microbial contaminants due to total coliform bacteria detections. Wells #1 and #5 automatically rate high for all types of contaminants because access is not restricted to vehicular access within 50 feet of the wellheads. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking. Except as noted above, the wells rated moderate for all contaminant categories.

Table 3. Summary of Duquette Pines Inc Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	M	L	L	L	M	H*	H*	H*	H*
Well #2	H	M	L	L	L	M	M	M	M	H*
Well #3	H	M	L	L	L	M	M	M	M	H*
Well #4	H	M	L	L	L	M	M	M	M	M
Well #5	H	M	L	L	L	M	H*	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = well rated automatically high due to unrestricted vehicular access or microbial detections

Susceptibility Summary

The Duquette Pines Inc public water system (PWS #4080016) consists of five wells that are mainfolded together. The system serves approximately 90 people through 53 connections. Duquette Pines Inc is located to the northeast of Idaho City (Figure 1).

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No SOCs or VOCs have ever been detected in the tested water. Traces of the IOCs barium, fluoride, and nitrate have been detected in the wells. In December 1998, arsenic was measured at 30 ppb at the manifold. In October 2001, the EPA lowered the MCL for arsenic from 50 ppb to 10 ppb, giving systems until 2006 to come into compliance. The September 2000 arsenic measurement had a value of 4 ppb. In October 1996, July 1997, and July 2002, repeat detections of total coliform occurred in the distribution system. In July 1997, repeat detections of total coliform also occurred in Wells #2 and #3.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Duquette Pines Inc, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 50-foot radius circle around the wellhead clear of potential contaminants. Restricting access to vehicles and other unauthorized access within this 50-foot radius circle would reduce the susceptibility scores of Well #1 and #5 from high to moderate. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated assessment areas are outside the direct jurisdiction of Duquette Pines Inc, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Because the arsenic in the well has exceeded the level of the revised MCL, the Duquette Pines Inc water users may need to consider implementing engineering controls to monitor and maintain or reduce the level of this contaminant in the water system. The EPA plans to provide up to $20 million over the next two years for research and development of more cost-effective technologies to help small systems meet the recently revised MCL. EPA (2002) recently released an issue paper entitled *Proven Alternatives for Aboveground Treatment of Arsenic in Groundwater*.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near residential land uses areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. The primary source of potential contaminants comes from the mining activities within the delineations. Therefore the Forest Service and/or other federal and state agencies should be involved in protection activities.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Boise Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office (208) 373-0550

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208)343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund@ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Idaho Department of Agriculture, 1998. Unpublished Data.

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Attachment A

Duquette Pines Inc
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.273)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : DUQUETTE PINES INC Well# : WELL #1, #5

Public Water System Number 4080016 08/26/2002 11:47:41 AM

1. System Construction		SCORE				
Drill Dates	11/01/1970 (#1); 09/28/1994 (#5)					
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	1997			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		YES	0			
Well located outside the 100 year flood plain		YES	0			
	Total System Construction Score		3			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		NO	2			
Vadose zone composed of gravel, fractured rock or unknown		NO	0			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
	Total Hydrologic Score		5			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT		0	0	0	0
Farm chemical use high		NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A		YES	YES	YES	YES	YES
	Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	23	6	6	2
(Score = # Sources X 2) 8 Points Maximum			8	8	8	4
Sources of Class II or III leacheable contaminants or		YES	5	0	0	
4 Points Maximum			4	0	0	
Zone 1B contains or intercepts a Group 1 Area		NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land		0	0	0	0
	Total Potential Contaminant Source / Land Use Score - Zone 1B		12	8	8	4
Cumulative Potential Contaminant / Land Use Score			12	8	8	4
4. Final Susceptibility Source Score			11	10	10	10
5. Final Well Ranking			High	High	High	High

Ground Water Susceptibility Report Public Water System Name : DUQUETTE PINES INC Well# : WELL #2, #3

Public Water System Number 4080016 08/26/2002 11:47:41 AM

1. System Construction		SCORE				
Drill Date	06/19/1976					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1997				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	3				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	NO	0				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	5				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT		0	0	0	0
Farm chemical use high	NO		0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES		NO	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A			0	0	0	0
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES		23	6	6	2
(Score = # Sources X 2) 8 Points Maximum			8	8	8	4
Sources of Class II or III leacheable contaminants or	YES		5	0	0	
4 Points Maximum			4	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO		0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land		0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B			12	8	8	4
Cumulative Potential Contaminant / Land Use Score			12	8	8	4
4. Final Susceptibility Source Score			11	10	10	10
5. Final Well Ranking			Moderate	Moderate	Moderate	High

Ground Water Susceptibility Report Public Water System Name : DUQUETTE PINES INC Well# : WELL #4

Public Water System Number 4080016 08/26/2002 11:47:41 AM

1. System Construction		SCORE			
Drill Date	06/19/1976				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1997			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	23	6	6	2
(Score = # Sources X 2) 8 Points Maximum		8	8	8	4
Sources of Class II or III leacheable contaminants or	YES	5	0	0	
4 Points Maximum		4	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	8	8	4
Cumulative Potential Contaminant / Land Use Score		12	8	8	4
4. Final Susceptibility Source Score		10	10	10	10
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate